

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Currently Amended) A method comprising the steps of:

directing a primary electron beam to propagate along a first an optical axis through a column, said column including a deflection assembly having deflectors operable to apply deflection fields to the primary electron beam at spaced-apart locations along the column, at least a first of said locations being located upstream of an inner lens detector assembly and at least a second of said locations being located downstream of said inner lens detector assembly, said upstream and downstream directions each defined with respect to a direction of the primary beam propagation;

~~deflecting a trajectory of the primary electron beam from the first optical axis to propagate along a second optical axis substantially parallel to and spaced apart from the first optical axis;~~

impinging the primary electron beam on an inspected object, thereby producing both low-energy and high-energy electrons resulting from at least one of reflection and scattering of the primary electron beam from the inspected object, each of the produced low-energy and high-energy electrons having an initial trajectory with respect to the inspected object;

detecting a first portion of the produced high-energy electrons by multiple in-lens detectors;

directing, by introducing a substantial electrostatic field, ~~[[the]]~~ a trajectory of the produced low-energy electrons and a second portion of the produced high-energy electrons towards an inner lens detector assembly, wherein the initial trajectory of the second portion of the produced high-energy electrons is substantially coincident with the optical axis ~~multiple interior detectors;~~ and

detecting the directed low-energy electrons and the second portion of high-energy electrons by the inner lens assembly

~~receiving detection signals of detected electrons from at least one inner lens detector of said inner lens assembly, wherein an initial trajectory of at least some of the detected electrons is substantially coincident with one of the first and the second optical axes.~~

2. (Currently Amended) The method of claim 1 wherein introducing a substantial electrostatic field comprises introducing a first voltage potential difference between the inspected object and a first portion of the column and introducing a second voltage potential difference between a second portion of the column and the inspected object.

3. (Previously Presented) The method of claim 2 wherein the first portion of the column is positioned below the second portion and wherein the first voltage potential difference is smaller than the second voltage potential difference.

4. (Currently Amended) The method of claim 1 further comprising a step of:

receiving detection signals corresponding to at least one of the low-energy electrons, the first portion of high-energy electrons, and the second portion of high-energy electrons; and

processing the received detection signals to provide an indication about a defect or a process variation.

5. (Previously Presented) The method of claim 1 further comprising a step of varying the substantial electrostatic field to alter one or more collection zones of the multiple interior detectors.

6 - 8. (Cancelled)

9. (Currently Amended) The method of claim 1 wherein an inspected area of the ~~inspected~~ object is positioned within the substantial electrostatic field.

10. (Currently Amended) The method of claim 1 further comprising a preliminary step of determining a measurement angle between the primary electron beam and the ~~inspected~~ object.

11. (Original) The method of claim 10 wherein the measurement angle ranges between acute angles and obtuse angles.

12. (Original) The method of claim 1 wherein detected electrons include electrons from a lower portion of a high aspect ratio hole.

13. (Currently Amended) A system comprising:

means for directing a primary electron beam to propagate along a ~~first~~ an optical axis through a column, ~~said column including a deflection assembly having deflectors operable to apply deflection fields to the primary electron beam at spaced apart locations along the column, at least a first of said locations being located upstream of an inner lens detector assembly and at least a second of said locations being located downstream of said inner lens detector assembly, said upstream and downstream directions each defined with respect to a direction of the primary beam propagation; and said deflectors~~

~~operable to deflect a trajectory of the primary electron beam from the first optical axis to propagate along a second optical axis substantially parallel to and spaced apart from the first optical axis;~~

~~means for impinging the primary electron beam on an inspected object, thereby producing the high-energy and low-energy electrons resulting from at least one of reflection and scattering of the primary electron beam from the inspected object, each of the produced high-energy and low-energy electrons having an initial trajectory with respect to the inspected object; and~~

~~multiple in-lens detectors for detecting a first portion of the produced high-energy electrons; and~~

~~means for directing, by the introduction of a substantial electrostatic field, a trajectory of the produced low-energy electrons and a second portion of the produced high-energy electrons towards an inner lens detector assembly, wherein the initial trajectory of the second portion of the produced high-energy electrons is substantially coincident with the optical axis; and~~

~~an inner lens detector assembly for detecting low-energy electrons and the second portion of high-energy electrons.~~

~~means for directing, by introducing a substantial electrostatic field, the produced electrons towards multiple interior detectors;~~

~~wherein the initial trajectory of at least some of the produced electrons is substantially coincident with one of the first and the second optical axes.~~

14. (Currently Amended) The system of claim 13 wherein the column further comprises a first portion that is associated with a first voltage level and a second portion that is associated with a second voltage level.

15. (Previously Presented) The system of claim 14 wherein the first portion of the column is positioned below the second portion.

16. (Cancelled)

17. (Currently Amended) The system of claim 13 further adapted to vary the substantial electrostatic field to alter one or more collection zones of the multiple interior in-lens detectors.

18. (Cancelled)

19. (Currently Amended) The system of claim 13 wherein an inspected area of the ~~inspected~~ object is positioned within the substantial electrostatic field.

20. (Previously Presented) The system of claim 19 further capable of introducing a tilt between the primary electron beam and the inspected area.

21. (Previously Presented) The system of claim 13 wherein the produced electrons include electrons from a lower portion of a high aspect ratio hole.